

What is claimed is:

1. An operation input device for allowing an operator to input a movement instruction to an object to be controlled, comprising:

5 a first movement detection unit for detecting the position and/or attitude of a first operation input unit; and

10 a second movement detection unit, connected to the first movement detection unit, for detecting the position and attitude of a second operation input unit.

2. The operation input device of claim 1, wherein the first operation input unit and the second operation input unit are connected to the proximal end side of the device 15 by a series of links so that the first movement detection unit is situated on the device proximal end side of the second movement detection unit; the first movement detection unit detects mainly the position of the first operation input unit; and

20 the second movement detection unit detects the position of the second operation input unit relative to the first operation input unit and the attitude of the second operation input unit.

3. The operation input device of claim 1 or 2, wherein the first movement detection unit has degrees of freedom for detecting the position of the first operation input unit and degrees of freedom corresponding to a change in the attitude of the first operation input unit caused by a change in position; and the second movement detection unit has degrees of freedom for detecting the attitude of the second operation input unit and degrees of freedom corresponding to a change in the position of the second operation input unit caused by a change in attitude.
4. The operation input device of any one of claims 1 to 3, wherein the first operation input unit has an armrest unit for supporting at least around the wrist of the arm of an operator; the first movement detection unit detects the position and attitude of a part corresponding to the wrist of the operator; the second operation input unit has a holding unit to be held by a finger of the operator; and the second movement detection unit detects the position and attitude of the holding unit.
5. The operation input device of claim 4, wherein the holding unit has a control lever, and the movement of the control lever can be detected.

6. The operation input device of any one of claims 1 to 4, wherein the first movement detection unit forms the first operation input unit to achieve at least three degrees of freedom with respect to the proximal end of the device with 5 the aid of hinges and links; and the second movement detection unit is connected to the device proximal end side of the first operation input unit of the first movement detection unit and forms the second operation input unit to achieve six degrees of freedom with the aid of hinges and 10 links.

7. The operation input device of claim 6, wherein the second movement detection unit has a position link unit for detecting the position of the second operation input unit and an attitude link unit for detecting the attitude of the second operation input unit, the position link unit connects 15 two parallel links, and straight lines for connecting a pair of supporting points of the end portions of the parallel links are substantially at 45° from the vertical direction.

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8. The operation input device of claim 6, wherein the position link unit comprises a dead weight compensation mechanism for urging the parallel links in the rotation direction by spring force.

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9. An operation input device for allowing an operator to input a movement instruction to an object to be controlled, comprising:

5 an armrest unit for supporting the wrist part of an operator; and

a movement detection unit for detecting the position and attitude of an operation input unit with a part corresponding to the wrist of the operator of the armrest unit as the base point.

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10. A telecontrol system comprising a control device for controlling an object to be controlled based on position and attitude information to be instructed to an object to be controlled which has been prepared from information on the 15 position of the first operation input unit of the operation input device of any one of claims 1 to 8 and information on the attitude of the second operation input unit of the operation input device.

20 11. The telecontrol system of claim 10, wherein the control device comprises:

25 first position and attitude calculating means for calculating information on the position of the first operation input unit and information on the attitude of the first operation input unit from the detection information

of the first movement detection unit and the detection information of the second movement detection unit of the operation input device;

5 second position and attitude calculating means for calculating information on the position of the second operation input unit and information on the attitude of the second operation input unit from the detection information of the first movement detection unit and the detection information of the second movement detection unit of the 10 operation input device; and

transmission instruction value creating means for preparing position and attitude information to be instructed to the object to be controlled from information on the position of the first operation input unit from the 15 first position and attitude calculating means and information on the attitude of the second operation input unit from the second position and attitude calculating means.

20 12. The telecontrol system of claim 10 or 11, wherein the system has switch means which can be operated by the operator, and the control device can change the method of preparing position and attitude information to be instructed to the object to be controlled by selecting only

the detection information of the second movement detection unit of the operation input device.

13. A telecontrol method comprising the steps of:

5 preparing position and attitude information to be instructed to an object to be controlled from information on the position of the first operation input unit of the operation input device of any one of claims 1 to 8 and information on the attitude of the second operation input  
10 unit of the operation input device; and

controlling the object to be controlled based on the position and attitude information.

14. The telecontrol method of claim 13, comprising the  
15 steps of:

calculating information on the position and attitude of the first operation input unit from the detection information of the first movement detection unit of the operation input device;

20 calculating information on the position and attitude of the second operation input unit from the detection information of the first movement detection unit and the detection information of the second movement detection unit of the operation input device; and

preparing position and attitude information to be  
instructed to the object to be controlled from information  
on the position of the first operation input unit and  
information on the attitude of the second operation input  
5 unit.